

Wing Mountain Fuels Reduction and Forest Health Restoration Project

Coconino National Forest
Flagstaff Ranger District

Proposed Action
September 2011

Project Area

The Wing Mountain project area is located approximately 20 miles north of Flagstaff, Arizona (see Figure 1). The project area consists of approximately 11,150 acres, including about 50 acres of Experimental Forest lands and nine acres of private lands within the project boundaries. Ponderosa pine, mixed conifer, and aspen make up around 10,000 acres or almost 90% of the project area. The project area is located within all or portions of T22N, R6E, Sec. 1-5, 7-21, 28-30, 33; T23N, R6E, Sec. 35, and 36 on the Flagstaff Ranger District of the Coconino National Forest, and is bordered by Forest Service roads, the Kachina Peaks Wilderness, Arizona Snowbowl, and the Fort Valley Experimental Forest, as well as private and state lands. Elevation ranges from approximately 7400 to 9200 feet.

Background

Historical conditions

Ponderosa pine and dry mixed conifer forests of northern Arizona were historically characterized by frequent, low-intensity surface fires occurring every 2 to 12 years in ponderosa pine and every 3 to 21 years in mixed conifer. This historic fire regime maintained an open forest structure with variable, patchy tree distribution by thinning many of the smaller trees before they grew large enough to become fire-resistant (Moir et al. 1997, Covington et al. 1997). The forests were uneven-aged and consisted of few small diameter trees and a greater number of large, older trees arranged in groups and interspersed with grassy openings (Moore et al. 2004; White 1985). Trees were arranged in groups of 2-40 trees up to 0.7 acres in size (White 1985; Fule et al. 1993).

Current Conditions

After Euro-American settlement, several conditions, including fire exclusion, heavy livestock grazing, high-grade timber harvesting, and climatic events, favored dense ponderosa pine regeneration (Long and Smith 2000). As a result, the current forest structure is predominately even-aged and consists of dense, overstocked stands of ponderosa pine with a closed canopy. Changes in historic fire regimes over the past century have resulted in increased conifer densities, surface fuel accumulation, increased fuel continuity, changes in age and size class diversity, changes in successional dynamics, altered insect and disease dynamics, decreased understory productivity and diversity, decreased tree health, growth and vigor, increased crown fire potential, increased fire size and intensity, and pine encroachment into meadows, aspen stands and drainage bottoms (Long 2003). Historical photographs, accounts, and maps indicate that there has been a dramatic reduction in the extent of meadows since the early 1900s.

Even-aged forests are susceptible by their nature to catastrophic disturbances such as stand-replacing fire and insect epidemics. Most of the project area shows a significant departure from natural conditions, and a wildfire occurring under existing conditions would result in more severe effects than would occur under the natural fire regime. In addition to the ecological impacts of these changes, there is an increased risk to firefighter and public safety with the potential for extreme fire behavior. Wildlife habitat and threatened and endangered species and indicator species in the project area are also at risk due to the unnatural conditions. The communities within the Wing Mountain project area are currently at risk from a wildfire

and were included in the Community Wildfire Protection Plan for Flagstaff and Surrounding Communities (2005).

Over the past 10 years, the majority of aspen sites across the project area have sustained greater than 60% aspen mortality (Fairweather et. al. 2008). Ground surveys revealed aspen decline is due to a range of factors including: a late season frost event; severe drought; defoliation by western tent caterpillar; and multiple secondary agents acting on stressed trees. The residual aspen trees are, in general, of poor health with reduced crown canopies. There is little evidence on the San Francisco Peaks of successful aspen recruitment over the last several decades due in large part to browsing by large ungulates. Widespread mortality of mature aspen trees, chronic browsing by large ungulates, and advanced conifer regeneration is expected to result in rapid vegetation change of many ecologically unique and important aspen sites.

Desired Conditions

Desired conditions include a more open, variable, patchy forest structure that is sustainable, uneven-aged, and within the historic range of natural variability. Trees would be arranged primarily in groups of varying shape, size, and number of trees, with a mosaic pattern of individual and clustered trees interspersed among openings. The area would exhibit an increase in age class diversity, decreased canopy cover, decreased conifer densities, improved successional dynamics, increased and unsuppressed regeneration, increased old growth forest and increased vertical and horizontal heterogeneity. Desired future conditions of improved tree health and vigor, improved forest health, and a sustainable forest structure would promote a forest that is more resilient to insects and diseases. Other benefits such as improved hydrologic function, improved wildlife habitat, and improved scenic quality are expected from this type of restoration treatment. These desired conditions would be consistent with goals for management of Threatened & Endangered species, and US Forest Service Region 3 sensitive species with specific management requirements.

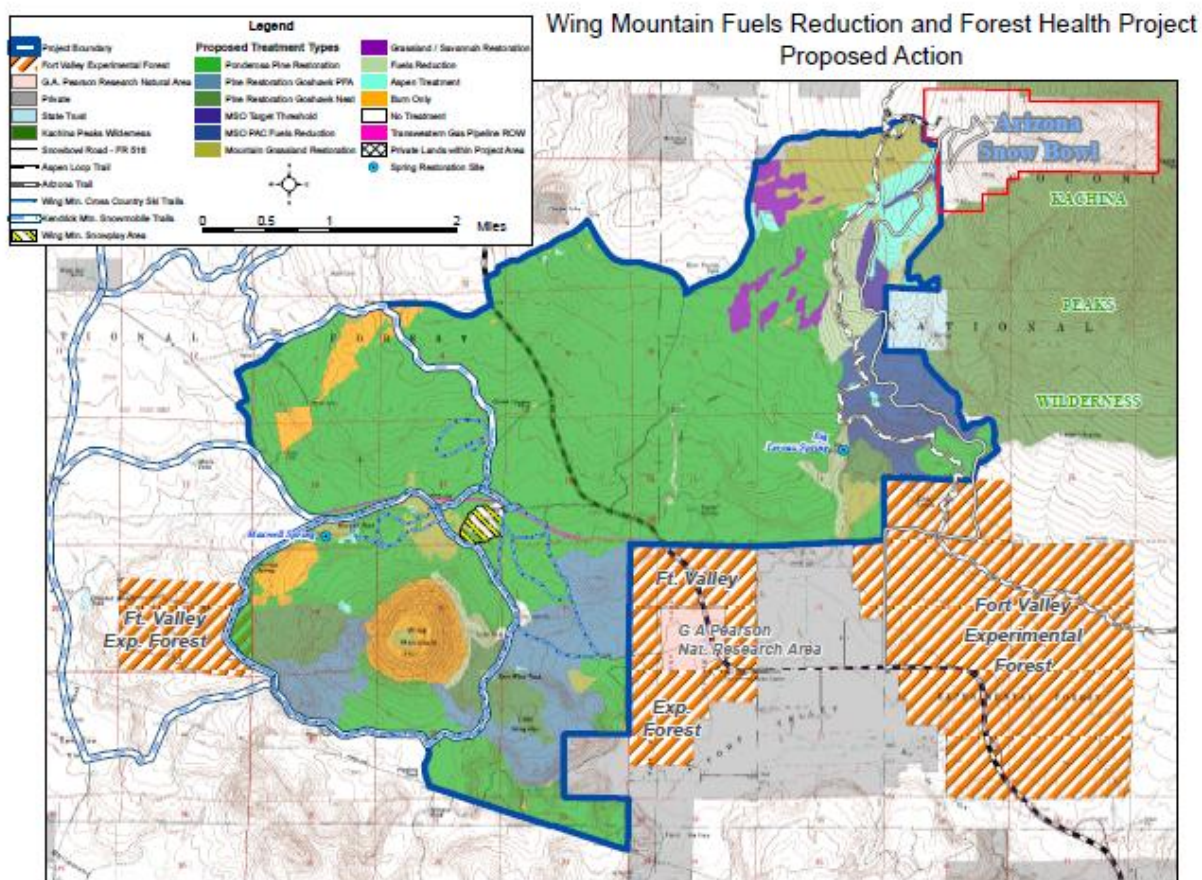
The desired condition for Maxwell and Big Leroux Springs includes healthy, self-sustaining riparian vegetation around both springs.

The desired condition for fire hazard ratings is for primarily low to moderate hazard ratings across the project area. This includes a combination of increased height to live crown, reduced dead and down fuel wood load, decreased percent canopy cover, and decreased number of trees per acre that would minimize the chance of severe fire behavior occurring during the worst fire weather.

Table 1. Wildfire Hazard Existing and Desired Values

Measure	Existing Condition		Desired Condition
Fire hazard rating	Extreme	3,812 acres	Low or moderate in most of the project area (some areas unsuitable for treatment will remain at higher ratings)
	Very High	1,444 acres	
	High	2,978 acres	
	Moderate	2,249 acres	
	Low	799 acres	

Figure 1. General Location of the Wing Mountain Project Area



Purpose and Need

Based on the comparison of the existing and desired conditions for the project area, there is a need to bring existing ecosystem conditions closer to desired conditions. The current dense nature of the vegetation contributes to an unacceptably high fire hazard. The primary purpose of this project is to improve the health of forests and associated habitats, and to reduce the threat of severe wildfire in and around the Wing Mountain project area. There is a need to move toward conditions that support natural and desirable fire behavior with healthy and sustainable forests, meadows, and watersheds.

Need for Change

The Need for Change is focused on the following topics: restore Forest Health, reduce Wildfire Hazard, and improve Watershed Conditions. For each of these topics, Existing Conditions describe the current ecological conditions. Desired Conditions describes the goals and vision for the area. Need for Change summarizes the differences between existing and desired conditions that necessitate the need for changed conditions.

Definition of Treatment Terms

Clumpy-groupy: Refers to a forest structure with horizontal and vertical heterogeneity (i.e. openings and groups of trees intermixed).

Non-uniform spacing: Tree and opening spacing which mimics a more natural forest structure.

Pre-Settlement: Established prior to the disruption of the natural frequent fire regime and widespread Anglo-American and Hispanic settlement of the area.

Blackjack/Yellow Ponderosa Pine: “Blackjack is merely the form which yellow pine assumes before it reaches 125 or 150 years, during which period its bark is dark red-brown or blackish, with narrow furrows, in strong contrast to the lighter, widely furrowed bark of mature trees,” (Woolsey, 1911)

Suckering: The process by which plants regenerate from root systems.

Ungulate: Any large group of mammals having hooves (Ie. Elk, deer, cattle).

Mexican Spotted Owl Restricted Target Threshold: Stands outside of Mexican spotted owl Protected Activity Centers (PACs) that are to be managed to achieve desired habitat conditions for Mexican spotted owls as defined in the 2011 Mexican Spotted Owl Recovery Plan.

Proposed Action

To meet the project's purpose and need, the following activities are proposed (see Figure 2):

Ponderosa Pine Restoration – 7088 acres

- Utilize uneven-aged management methods to promote regeneration and a more uneven-aged forest structure.
- Emphasize retaining old, pre-settlement trees.
- Desired leave tree arrangement would be “clumpy-groupy”.
- Tree groups would vary in shape, size, density, and number (approximately 2-40 trees per group, up to 0.7 acres in size, basal area of 50 ft² per acre or greater in VSS 4-6).
- Stands and areas within stands with moderate or high levels of Dwarf Mistletoe infection will be treated with an intermediate thinning. Tree groups will average 70 to 90 square feet of basal area. Retain the healthiest and largest trees with the least amount of mistletoe.
- Pile and prescribed burning (initial entry and maintenance).

Ponderosa Pine Restoration within Northern Goshawk Post Fledging Areas – 959 acres

- Utilize uneven-aged management methods to promote regeneration and a more uneven-aged forest structure.
- Emphasize retaining old, pre-settlement trees.
- Desired leave tree arrangement would be “clumpy-groupy”.
- Tree groups would vary in shape, size, density, and number (approximately 2-40 trees per group, up to 0.7 acres in size, basal area of 70 ft² per acre or greater in VSS 4-6).
- Stands and areas within stands with moderate or high levels of Dwarf Mistletoe infection will be treated with an intermediate thinning. Tree groups will average 70 to 90 square feet of basal area. Retain the healthiest and largest trees with the least amount of mistletoe.
- Pile and prescribed burning (initial entry and maintenance).

Ponderosa Pine Restoration within Northern Goshawk Post Fledging Nest Areas – 456 acres

- Manage for mature to old age forest with high canopy cover.
- Utilize thinning from below to promote the desired stand structure.
- Emphasize retaining old, pre-settlement trees.
- Utilize non-uniform spacing
- Manage for basal area of 50-70+ ft² per acre or greater in VSS 5-6.
- Pile and prescribed burning (initial entry and maintenance).

Mexican Spotted Owl Restricted Target Threshold – 82 acres

- Manage for Mexican spotted owl (MSO) target threshold conditions for mixed conifer.
- Emphasize retaining large trees.
- Thin from below to reduce fuel ladders and loading.
- Maintain or manage for basal area of 150 and 170 ft².
- Pile and prescribed burning (initial entry and maintenance).

Mexican Spotted Owl Protected Activity Center (PAC) Treatment – 460 acres

- Thin from below to reduce ladder fuels and fuel loading.
- Treatment methods include mechanical and hand thinning.
- Treatment would be limited to thinning trees less than 9 inches diameter breast height (dbh).
- Pile and prescribed burning (initial entry and maintenance).

Mountain Grassland Restoration - 629 acres

- Removal of conifer encroachment using hand thinning or mechanical treatment followed by prescribed fire.
- Stimulate growth and regeneration of herbaceous species using prescribed fire; pile and prescribed burning (initial entry and maintenance).

Grassland Restoration with Pine Savannah –173 acres

- Remove mixed conifer species and excess ponderosa pine.
- Restore former grassland conditions, leaving 5-15 trees per acre based on number of pre-settlement evidences on the ground.
- Pile and prescribed burning (initial entry and maintenance).

Fuels Reduction Thin from Below—352 acres

- Thin from below to reduce ladder fuels and fuel loading.
- Treatment methods include mechanical and hand thinning.
- Where feasible, canopy gaps and interspaces will be created between tree groups, typically not more than 50 ft.
- Basal Area will typically be 70 BA or greater across the stand.
- Areas include steep slopes with sensitive soils, and inoperable boulder fields.
- Pile and prescribed burning (initial entry and maintenance).

Aspen Restoration—1422 (271) acres

- Aspen occurs across 1422 acres of the project. Of that, 271 acres are designated as pure aspen cover type. The remaining 1151 acres have aspen groups scattered throughout the existing ponderosa pine and mixed conifer types.
- A variety of different treatments would be used to promote aspen health and regeneration, including the removal of conifer encroachment, prescribed fire, ripping, planting, and/or cutting of aspen to induce root suckering.
- Methods to protect aspen regeneration from severe ungulate browsing could include jack-strawing and fencing.

Burn only - 577 acres

- Prescribed fire would be the only treatment in the burn scars from the Pipe and Whitehorse fires, in the old experimental clearcut, and on Wing Mountain itself.
- Prescribed burning (initial entry and maintenance).

No Treatment – 78 acres

- Includes old borrow material pits and gas pipeline right of way.

Spring Restoration

- Maxwell Springs- Construct and maintain ungulate-deterrent fences to protect the quality of the spring.
- Big Leroux Springs- Construct and maintain ungulate-deterrent fences to restore riparian vegetation. Fencing would not affect wildlife access. Re-plumb and release excess water to create riparian area, including potential breeding habitat for northern leopard frog.

Temporary Roads and Improvements

There is a large network of existing roads within the project area. These existing roads would be used to the extent possible for hauling harvested trees. Forest Roads (FR) 151, 222, and 171 would be used as main haul routes. FR 222 and 171 could be resurfaced from Curly Pit (located north of Saddle Mountain)-contingent upon funding. FR 519 would be reconditioned, including all drainages, and resurfaced from FR 222 to FR 518 using material from Riordan Pit. Snowbowl Road (FR516) may be used as a haul route; however no log truck traffic would be allowed when Snowbowl Ski Resort is open for ski season or during permitted special use events using Snowbowl Road.

It is possible that not all treatment blocks could be accessed by these roads. As a result, approximately 4 miles of temporary roads may need to be constructed to assist with tree harvesting and hauling. The precise location of temporary roads cannot be determined until a contract for the treatment is secured and the type of equipment to be used by the contractor is determined. Temporary roads would be rehabilitated after harvesting has been completed.

Road Decommissioning and Closures

Approximately 8 miles of roads would be decommissioned. Rehabilitation would include re-contouring alignment and scattering slash along road length to promote vegetation regeneration.

Forest Road 151A would be used as a haul route during operations. Following completion of project implementation, a segment of FR151A would be decommissioned between Highway 180 and FR9216M.

Road decommissioning and temporary road rehabilitation would vary based on the conditions of the existing road. Slash could be used to cover the road, block motorized use, and to facilitate vegetation regeneration. In other cases, re-vegetation might not occur naturally due to compacted soils. In this case, mechanized equipment may be used to scarify the existing road bed to block motorized travel and prepare a seed bed so that native seed could be used to re-vegetate the area.

Cooperation with Other Interested Organizations

Elements of this proposed action have grown out of on-going communication with other agencies and organizations that share an interest in the wise management of the project area, including Northern Arizona University, Arizona Game and Fish Department, US Fish and Wildlife Service, the Greater Flagstaff Forest Partnership, Arizona Snowbowl, and many others. We anticipate continued discussion and input from these and other interested parties, including potential opportunities for research, monitoring, and cooperative management efforts.

Possible Alternatives

In addition to the Proposed Action, the No Action Alternative will be analyzed. No Action will consider the effects of not completing the proposed actions within the Wing Mountain project area.

Based on significant issues identified during scoping, other alternatives may be developed. The full development and analysis of alternatives will be completed following public response to this scoping effort and will be addressed in the Environmental Assessment (EA).

Design Features

The proposed action is designed to comply with Forest Plan standards and guidelines, as amended. Design features would be incorporated into the project to protect forest resources of soil, water, scenery values, wildlife and aquatic habitat, and rare plants. Mitigation measures and best management practices would be implemented during the project to prevent the introduction and spread of invasive plants, to reduce impacts to wildlife, to protect heritage resources, and to protect public health and safety.

Level of Environmental Analysis

The Proposed Action and any alternatives for the Wing Mountain Fuels Reduction and Forest Health Restoration project will be analyzed in an Environmental Assessment (EA) as described in Forest Service Handbook 1909.15, Chapter 40. The EA will fully describe and evaluate the proposed action and alternatives for meeting the purpose and need.

Decision Framework

Because the proposed action includes timber harvest exceeding the delegated authority of the District Ranger, the Forest Supervisor is the responsible official for deciding whether or not, and in what manner, lands within the Wing Mountain project area will be treated to reduce wildfire hazard and improve forest health.

Items in this decision will include:

- number of acres treated mechanically
- number of acres treated by hand thinning
- number of acres treated with prescribed fire
- treatments within the MSO Restricted habitat
- treatments within MSO PACs
- treatments within northern goshawk habitat
- construction of new temporary roads
- restoration at Big Leroux and Maxwell Springs

The decision will be based on a consideration of the environmental effects of implementing the proposed action or alternatives. The Forest Supervisor may select the proposed action, any alternative analyzed in detail, a modified proposed action or alternative, or no action.

Contact Person

For more information on this proposal and the project, contact Beale Monday, Wing Mountain Project Team Leader at (928) 527-8227, or via e-mail at bmonday@fs.fed.us. To comment on the Proposed Action during the Scoping Period beginning September 19th and ending October 18th, contact Leah Schofield, NEPA Coordinator at (928)527-8264, via e-mail at lschofield@fs.fed.us, or via mail at 5075 N. Highway 89, Flagstaff, AZ 86004. Comments may also be hand delivered to the Flagstaff Ranger District Office at the above address between 8:30 a.m. and 4:30 p.m., Monday through Friday, excluding holidays.